

CANADIAN FOOD CONSUMPTION SURVEYS: A FEDERAL-PROVINCIAL PARTNERSHIP**Danielle Brulé, Food Directorate, Health Protection Branch, Health Canada****ABSTRACT**

The last national dietary survey of the Canadian population, the Nutrition Canada Survey, was conducted in 1970-72. Data from this survey have been used extensively over the years by various levels of government and non-governmental agencies for policies, programs, health risk assessments, educational and other purposes. However, due to major changes in our food supply and in the eating habits of Canadians, these data are becoming outdated. As the importance of healthy eating habits are being recognized in the maintenance of health and in the prevention of chronic diseases, the Canadian Heart Health Initiative, a coalition of federal and provincial health representatives, proposed a partnership model in obtaining nutritional data at the national and provincial levels. Two of the federal partners in these provincial surveys are the Nutrition Research Division and the Bureau of Biostatistics of the Health Protection Branch, Health Canada. Our contribution includes assistance in the development of the protocol and the dietary assessment instruments and in the implementation of the survey. We are responsible for the data entry processing and the statistical analysis. The dietary assessment methods used in these surveys include 24-hr recalls conducted at the respondent's home by trained interviewers, nutrient supplement and food frequency questionnaires. Furthermore, each province can develop a questionnaire on topics of interest to them such as knowledge and attitudes towards healthy eating practices and physical activity. Some basic socio-demographic questions and anthropometric measurements complete the questionnaire set. Under the Canadian Heart Health Initiative, six provinces undertook or are currently undertaking food consumption surveys. Based on our experience gained from these surveys on Canadian adults, ongoing research on dietary assessment methods directed to school-aged children aged 6 to 17 years old is under way with our provincial partners.

Many similarities exist between Canadians and Americans with respect to eating habits. Why, then, would one want to conduct a Canadian food consumption survey? What are the differences between the Canadian and U.S. food consumption surveys? This presentation will present results from some provincial surveys and, in doing so, try to answer these questions.

The federal approach to creating partnerships with each province makes the Canadian food consumption surveys different from the NFCS and NHANES surveys. The current approach is based on an earlier survey performed by the Department of National Health from 1970-72. This survey, called the Nutrition Canada Survey, was the first national dietary survey of the Canadian population and involved interviewing approximately 13,000 individuals of all ages across five regions, namely, the Atlantic region, Quebec, Ontario, Prairies and British Columbia. Data from this survey have been widely used over the past two decades. However, the data is out-of-date because of major changes in the food supply and in the eating habits of Canadians. To remedy this situation, several governmental and non-governmental organizations proposed completing another national survey but the commitment and the financial support were scarce. These problems were circumvented by adopting a model used by the Canadian Heart Health Initiative (CHHI) in conducting provincial food consumption surveys.

The CHHI was formed as a result of a nation-wide consultation process designed to prevent cardiovascular disease (CVD) in Canada. Cardiovascular disease is still the main cause of mortality, currently accounting for 38% of all Canadian deaths. Since inception of the CHHI, CVD prevention is now being addressed as a public health issue. The CHHI is sponsored by the federal and provincial departments of Health in collaboration with the Heart and Stroke Foundation of Canada and over three hundred other agencies and organizations. It is a comprehensive national attempt to prevent and control CVD in Canada. In the first phase of the initiative, all provinces undertook surveys on CVD risk factor prevalence. This has led to the creation of an impressive database on the prevalence and distribution of the major controllable risk factors on over 23,000 Canadian adults from 10 provinces. One of the most striking findings from the CHHI database was that nearly two out of three Canadians have at least one of the three major modifiable risk factors: smoking, high blood pressure and elevated blood cholesterol level. The Eastern provinces of Nova Scotia and Newfoundland had the highest prevalence of risk factors whereas the Western provinces of Alberta and British Columbia had the lowest. The results of the provincial heart health surveys provide a compelling argument for the implementation of a multifaceted approach to the reduction of CVD risk.

The most important feature of the CHHI, from the perspective of conducting a Canadian nutrition survey, was the idea of collaborating with individual provinces to obtain food consumption data. Using this model, Health Canada has now collaborated with seven provinces to date, including Nova Scotia, Quebec, Saskatchewan, Alberta, Prince Edward Island, Newfoundland and New Brunswick. The latter two surveys are currently ongoing and will be completed soon. Two more provinces, Ontario and Manitoba, have expressed an interest and meetings are planned in the near future. We have also collaborated with the Department of Indian Affairs and Northern Development on nutrition surveys of selected Inuit communities in the Northwest Territories in 1993 and 1994. In Quebec, all Inuit communities around the Ungava Bay and the Hudson Bay and the Cree Indians around the James Bay area were surveyed in 1991-92.

Prior to implementation of the first provincial nutrition survey, the methodology was reviewed and approved by a panel of experts. The federal government plays an important role in the survey. First, we provide expertise in the development of the dietary assessment instruments and in the writing of the training manual. We conducted most of the training sessions with regard to the dietary assessment instruments in each province. Second, the federal government is responsible for data entry of survey questionnaires and the maintenance of the nutrient and food databases (centralized in Ottawa). Third, the government ensures consistency in the methodology among the various provinces. Since the ultimate goal is to create a national database, the federal government must work closely with each provincial team to maintain uniformity in several aspects of the methodology.

The provincial team can include members of various groups including: the provincial heart health program, the provincial health department, regional public health units and university researchers. They have the overall responsibility for the survey and for coordinating day-to-day activities during the field data collection. The printing of any survey material is covered at the provincial level as well as the selection of field personnel. The model is appealing from a provincial perspective because the resulting databases belong to the provincial teams or governments. It also has the advantage of providing food and nutrient intake data on 2000 adults per province. For several provinces, this represents the first time that such a database has been collected; for instance, the previous Nutrition Canada Survey collected nutritional information on a total of 400 adults in the four Atlantic provinces. The federal government also profits from the arrangement since, by prior agreement with the provinces, the data are made available to designated staff in the Food Directorate of the Health Protection Branch for risk assessment and research. This means that a copy of each provincial database is available for research and development programs and that any resulting publication should acknowledge the Principal Investigator and his/her team.

Methodology:

The target population consists of non-institutionalized adults of 18 to 74 years of age. Military personnel and people living on reserves are not included in the sampling frame. Pregnant and lactating women as well as institutionalized individuals are also excluded. These latter populations are identified at the first initial telephone contact. The sampling design is provided by Statistics Canada. It consists of a stratified probability sample of 2000 adults per province and must take into account the geographic areas of each province. Following a similar pattern to that used in the provincial risk factor surveys, the provincial surveys use the Provincial Medical Insurance Record Files to select at random the potential participants. Data are collected during two distinct seasons and on all days of the week to cover weekdays and weekend days. Statisticians have to take into account the intra- and inter- subject variation, so 30% of the target population is selected for a second interview.

Various questionnaires have been developed and used in the provincial surveys. The core survey package is composed of the 24 hour dietary recall, questions on vitamin and mineral supplements consumed over the past month, a food frequency questionnaire, a demographic profile as well as height and weight measurements. Waist and hip measurements were included only after completion of the third provincial survey. An advantage of the federal-provincial partnership is the ability to create province-specific questionnaires that include topics of interest to all stakeholders. These topics can include physical activity questions, knowledge and attitudes towards healthy eating as well as food security questions.

All field personnel must attend a standardized training session. It is an intensive two-week training session that includes lectures, written exercises and practice interviews both with other interviewers as well as with external individuals. The training session is completed with a written test and a mockup interview, which allows the trainers to assess each interviewer. The interviewers are provided with questionnaires and with standardized portion-size models to help the participants estimate the amount of food consumed.

The field procedures are summarized in Figure 1. It is the responsibility of the interviewers to make contact and to arrange an appointment with the participant. The interviews are conducted in the participant's home, preferably in the kitchen. All questionnaires are administered by the interviewers and are reviewed before leaving the interviewee's house for any omissions. They are also reviewed a second time shortly after at the interviewer's work place. The survey package is then sent to the facilitators for review. If the package is not correct, facilitators communicate with interviewers for clarification. Once correct, the forms are sent to the Quality Control Supervisor who also reviews the package. If the package is not correct, the Quality Control Supervisor contacts the facilitators for clarification/completion. Once the package is correct, the packages are sent in batches to the Nutrition Survey Section in Ottawa. Upon arrival, the batches are checked (total number of packages sent and number of field questionnaires per package) and assigned to the different data entry clerks.

Results:

Some of the results of the Nova Scotia and Quebec Nutrition Surveys are presented in Figures 2, 3 and 4 (these surveys have already been published, reports are available through the principal investigators of each province). Percentages of energy from protein, carbohydrate, total fat and alcohol for females aged 18 to 34 years are presented in Figure 2. Both provinces showed similar percentages; protein provided 16% of the total energy, carbohydrates provided 48% of the total energy, 35% of the energy came from total fat and alcohol provided nearly 2% of the total energy. Similar results could be seen for other age and sex groups.

Overall, mean macronutrient intakes were similar between the two provinces although some differences in food consumption patterns were apparent (figures 3 and 4). For example, the per capita consumption of butter, soft margarine and vegetable oil was significantly higher in Quebec than in Nova Scotia whereas hard margarine was more prevalent in Nova Scotia than in Quebec (Figure 3).

Figure 4 presents the mean intake of potatoes, pasta, rice and french fries for both provinces. On average, Nova Scotians had a higher mean intake of potatoes than Quebecers; it appears that potatoes are still a traditional part of the meal in Nova Scotia. Quebec residents, on the other hand, consume significantly more pasta and rice than do Nova Scotia residents.

Data such as these, therefore, serve to highlight similarities and differences between provinces. It is interesting to note that, even though overall nutrient consumption may be similar, food commodity choices can be drastically different from province to province.

In conclusion, the present federal-provincial partnerships have allowed both federal and provincial agencies to achieve their respective nutritional objectives. This partnership has many benefits for each participant and has provided support for the promotion of healthy eating practices as a strategy for CVD prevention. These goals are attained through the completion of each provincial food consumption survey and will allow the creation of a national food consumption database. These databases are storehouses of information on the nutritional health and food consumption patterns of Canadian adults.

PROVINCIAL NUTRITION SURVEY: PAPER FLOW

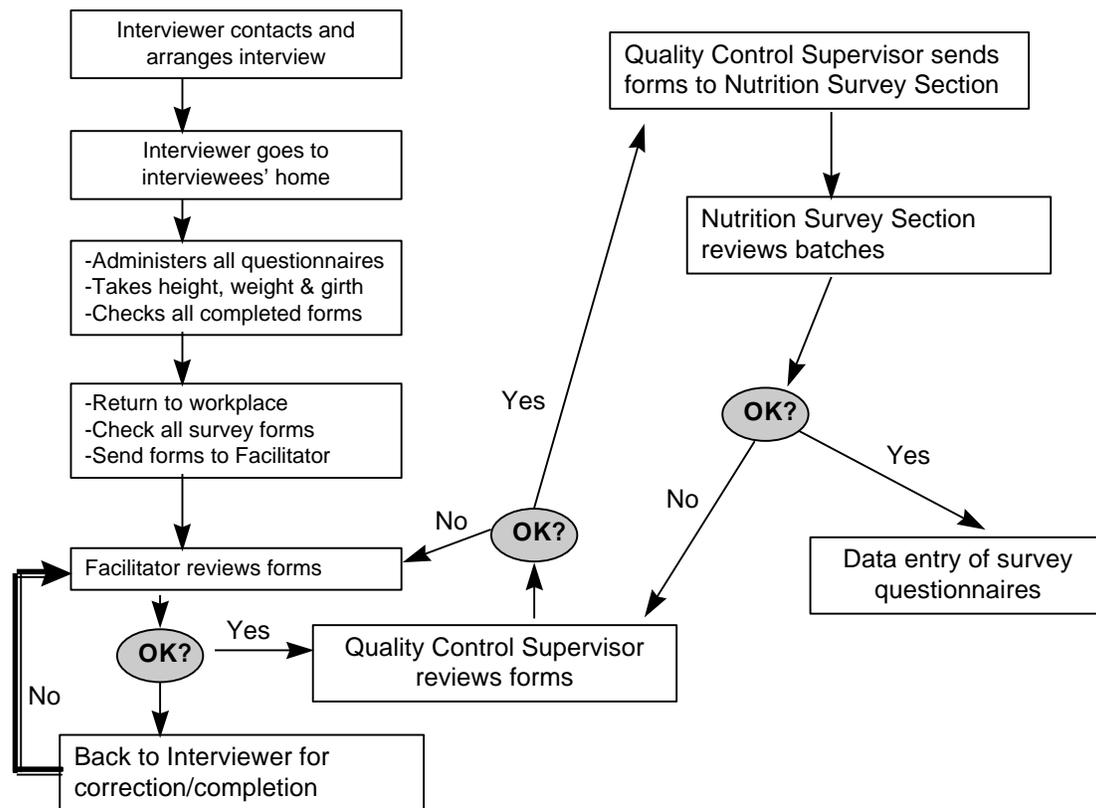


Figure 1.

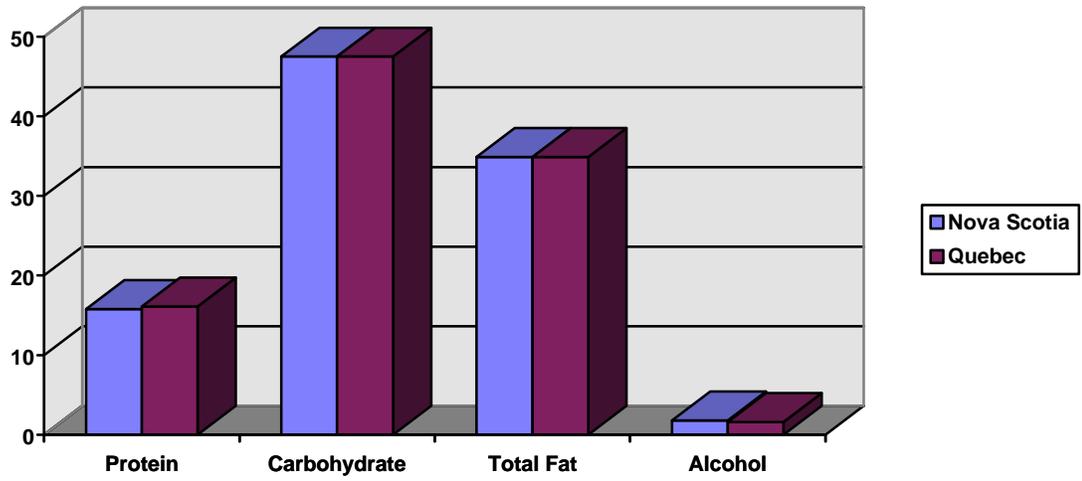


Figure 2. % of Energy from various nutrients for Females 18-34 years old.

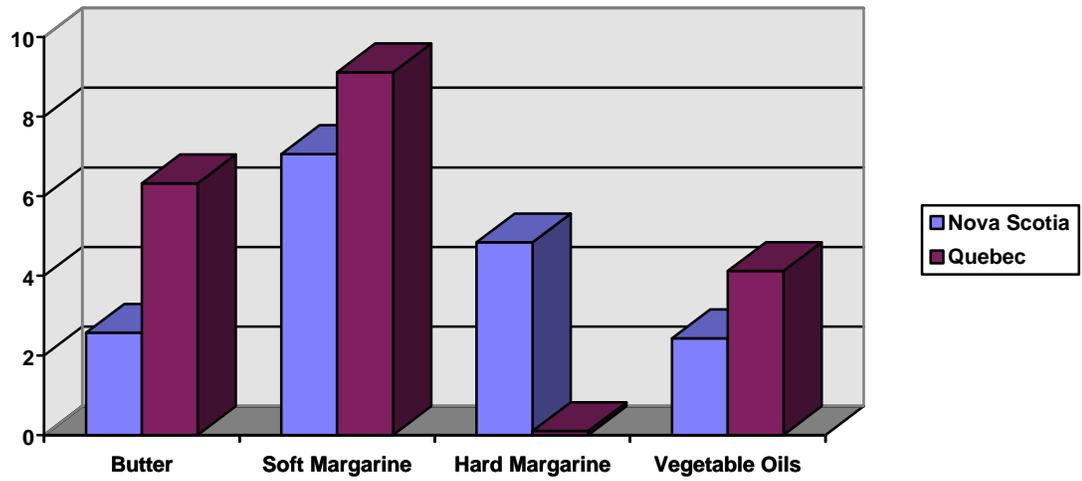


Figure 3. Mean intake, per capita (grams), of Fats and Oils.

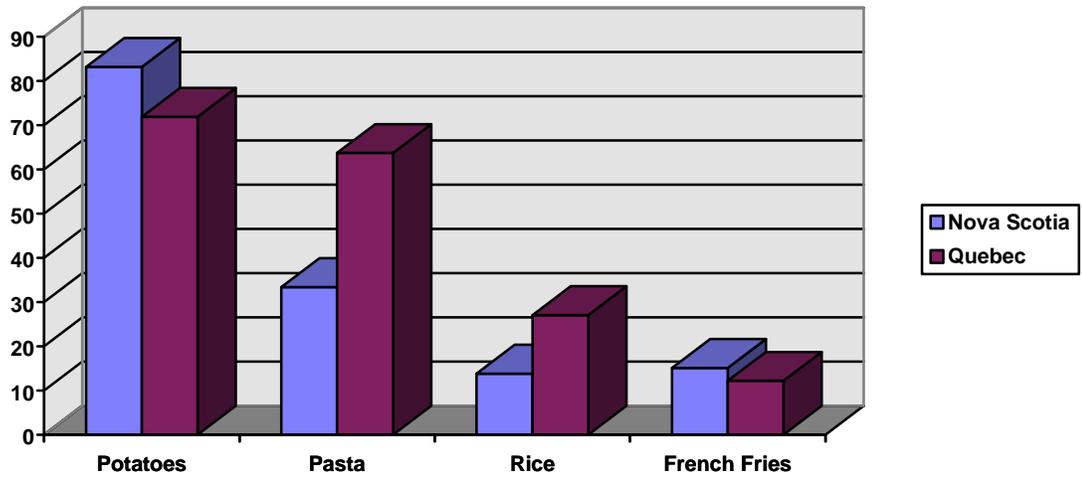


Figure 4. Mean intake, per capita (grams) of Potatoes, Pasta, Rice and French Fries